Israel Journal of Mathematics 2017 vol.221 N2, pages 705-729

Diagonal reduction algebra and the reflection equation

Khoroshkin S., Ogievetsky O.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

 We describe the diagonal reduction algebra D(gl n) of the Lie algebra gl n in the R-matrix formalism. As a byproduct we present two families of central elements and the braided bialgebra structure of D(gl n).

http://dx.doi.org/10.1007/s11856-017-1571-2

References

[1] D. Arnaudon, E. Buffenoir, E. Ragoucy and P. Roche, Universal solutions of quantum dynamical Yang-Baxter equations, Lett. Math. Phys. 44 (1998), 201–214.

[2] R. M. Ašerova, J. F. Smirnov and V. N. Tolstoi, Projection operators for simple Lie groups. II. General scheme for the construction of lowering operators. The case of the groups SU(n), Teoret. Mat. Fiz. 15 (1973), 107–119.

[3] R. M. Ašerova, J. F. Smirnov and V. N. Tolstoi, Description of a certain class of projection operators for complex semisimple Lie algebras, Mat. Zametki 26 (1979), 15–25, 156.

[4] P. Etingof and O. Schiffmann, Lectures on the dynamical Yang-Baxter equations, in Quantum groups and Lie theory (Durham, 1999), London Math. Soc. Lecture Note Ser., Vol. 290, Cambridge Univ. Press, Cambridge, 2001, pp. 89–129.

[5] L. K. Hadjiivanov, A. P. Isaev, O. V. Ogievetsky, P. N. Pyatov and I. T. Todorov, Hecke algebraic properties of dynamical R-matrices. Application to related quantum matrix algebras, J. Math. Phys. 40 (1999), 427–448.

[6] B. Herlemont and O. Ogievetsky, Rings of h-deformed differential operators, Theoret. and Math. Phys., to appear.

[7] A. P. Isaev, Twisted Yang-Baxter equations for linear quantum (super)groups, J. Phys. A 29 (1996), 6903–6910.

[8] A. Joseph, Modules for relative Yangians (family algebras) and Kazhdan-Lusztig polynomials, Transform. Groups 19 (2014), 105–129.

[9] S. M. Khoroshkin, An extremal projector and a dynamical twist, Teoret. Mat. Fiz. 139 (2004), 158–176.

[10] S. Khoroshkin and M. Nazarov, Mickelsson algebras and representations of Yangians, Trans. Amer. Math. Soc. 364 (2012), 1293–1367.

[11] S. Khoroshkin, M. Nazarov and E. Vinberg, A generalized Harish-Chandra isomorphism, Adv. Math. 226 (2011), 1168–1180.

[12] S. Khoroshkin and O. Ogievetsky, Mickelsson algebras and Zhelobenko operators, J. Algebra 319 (2008), 2113–2165.

[13] S. Khoroshkin and O. Ogievetsky, Diagonal reduction algebras of gl type, Funktsional. Anal. i Prilozhen. 44 (2010), 27–49.

[14] S. Khoroshkin and O. Ogievetsky, Structure constants of diagonal reduction algebras of gl type, SIGMA Symmetry Integrability Geom. Methods Appl. 7 (2011), Paper 064, 34.

[15] A. A. Kirillov, Introduction to family algebras, Mosc. Math. J. 1 (2001), 49–63.

[16] J. Mickelsson, Step algebras of semi-simple subalgebras of Lie algebras, Rep.Mathematical Phys. 4 (1973), 307–318.

[17] O. Ogievetsky, Uses of quantum spaces, in Quantum symmetries in theoretical physics and mathematics (Bariloche, 2000), Contemp. Math., Vol. 294, Amer. Math. Soc., Providence, RI, 2002, pp. 161–232.

[18] D. P. Zhelobenko, Representations of reductive lie algebras, VO "Nauka", Moscow, 1994.